



30.11.2017

The Zuse Institute Berlin (ZIB) is a non-university research institute under public law of the state of Berlin. The division "Mathematics for Life and Materials Sciences" is offering a **doctoral**

research position (f/m)
reference code: WA 37/17
pay grade E 13 TV-L Berlin (100%)

in the department "Visual Data Analysis". The position is offered at the earliest possible date and will be a fixed-term contract for 2 years with the option to be extended.

Tasks

Goal of the collaborative research project "Predicting Anatomically Realistic Cortical Connectomes using Statistical Inference" is to understand the structure of the brain at the cellular level: what are the "rules" governing the formation of connections (synapses) between nerve cells? This question is addressed by an integrated data-driven approach using 3D anatomical neural network modeling, mathematical and experimental techniques. In this position, you handle the data science component of the project.

Primary tasks include:

- maintaining and extending tools for the creation and analysis of large-scale anatomically realistic neural network models, comprising both online and offline processing, used on a daily basis by project partners and the neuroscience community,
- development and implementation of innovative strategies for the efficient computation and evaluation of various synapse formation hypotheses applied to large-scale neural networks,
- maintaining and extending a web application offering access to analysis and online processing tools.

The project is part of the German Research Foundation (DFG) Priority Program "Computational connectomics", funded for a period of 3 years. The applicant is expected to collaborate closely with other members in the project, in particular the Research Groups "In silico brain sciences" and "Neural systems analysis" of the Research Center caesar in Bonn. For further information on the field of activity please refer to www.zib.de/visual.

We expect creativity and a high degree of commitment in solving problems. We offer a friendly working atmosphere, excellent equipment and a challenging professional environment. We offer scientists in all career stages opportunities for further qualification and support and expect research on top level with international visibility. Candidates are strongly encouraged to pursue a doctoral degree in conjunction with this research work.

Requirements

- university degree in computer science, mathematics or physics
- good software development skills (C++, Javascript, HTML; Python would be desirable)
- experience in several of the following areas is essential: 3D visualization, image analysis, geometry processing, 3D anatomical atlases, distributed computing, Bayesian inference/optimization.
- applicants are expected to be highly motivated, self-reliant, and able to collaborate and work with top-level scientists in neurobiology and mathematics
- good command of written and spoken English is essential

The candidature of women is encouraged. Since women are underrepresented in information technology, ZIB is trying to increase the proportion of women in this research area.

Persons with disabilities will be given preference, when equally qualified.

Please send your application, quoting the reference code **WA 37/17**, including CV in tabular form and all relevant documents by **December 31st, 2017** (date of receipt) to

Zuse Institute Berlin (ZIB)

- Administration -
Takustr. 7
14195 Berlin

or electronically as pdf-form to: jobs@zib.de.

Further information about the position can be obtained from Hans-Christian Hege (E-mail: hege@zib.de).

For further job offers please visit our website at www.zib.de.